Dragun Corporation
Environmental Advisors
30445 Northwestern Hwy., Suite 260, Farmington Hills, MI 48334 • Phone: 248.932.0228 • Fax: 248.932.0618

January 19, 2016

Mr. Christopher J. Black
US EPA Region 5
77 West Jackson Boulevard
Mail Code: LU-9J
Chicago, IL 60604-3507

SUBJECT: Interim Corrective Measures Work Plan – Revision #1
EPA I.D. No. OHD 005-041-843
Dibble Park
1930 Tremainsville Road
Toledo, Ohio 43613
Project #30380-13

Dear Mr. Black:

Dragun Corporation (Dragun) is pleased to provide the "Interim Corrective Measures Work Plan – Revision #1, Dibble Park, Axalta Coating Systems, LLC, EPA I.D. No. OHD 005-041-843, 1930 Tremainsville Road, Toledo, Ohio 43613" for your review. Please contact one of us at (248) 932-0228 if you have any questions regarding this report.

Sincerely,

DRAGUN CORPORATION

Mark E. Resch, L.P.G.
Senior Geologist

Matthew C. Schroeder, P.E.
Senior Environmental Engineer

MER/MCS/amr

cc: Ms. Denise Trabbic-Pointer, Axalta Coating Systems, LLC
Mr. Rodney Maier, Axalta Coating Systems, LLC
Mr. John Alonzo, de maximis

Attachment

Interim Corrective Measures Work Plan – Revision #1
Dibble Park
Axalta Coating Systems, LLC
EPA I.D. No. OHD 005-041-843
1930 Tremainsville Road, Toledo, Ohio 43613

Prepared for

AXALTA

Axalta Coating Systems, LLC 400
Groesbeck Highway
Mt. Clemens, MI 48043

Prepared by

DragunCorporation
Environmental Advisors

30445 Northwestern Highway, Suite 260
Farmington Hills, Michigan 48334
Phone: (248) 932-0228
Fax: (248) 932-0618
Project #30380-13

January 19, 2016

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A	Standard Operating Procedures

ABBREVIATIONS

AOC	Area of Concern
CFR	Code of Federal Regulations
CMS	Corrective Measures Study
COC	Chemical of Concern
DQO	Data Quality Objective
EPA	Environmental Protection Agency
fbgl	Feet Below Ground Level
fasl	Feet Above Sea Level
ft	Feet
ICMWP	Interim Corrective Measures Work Plan
LRW	Limited Resource Water
MCL	Maximum Contaminant Limit
MCO	Media Cleanup Objective
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OSHA	Occupational Safety and Health Administration

QA/QC	Quality Assurance/Quality Control
RSL	Regional Screening Level
SVOC	Semi-Volatile Organic Compound
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
VOC	Volatile Organic Compound
µg/kg	Microgram Per Kilogram
µg/L	Microgram Per Liter

INTRODUCTION

Axalta Coating Systems, LLC (Axalta) retained Dragun Corporation (Dragun) to develop this Interim Corrective Measures Work Plan (ICMWP) for a portion of the property located at 1930 Tremainsville Road, Toledo, Ohio, EPA I.D. No. OHD 005-041-843 (Property). The Property location, in relation to the surrounding vicinity, is depicted on the Site Location Map (Figure 1) and the Property Features Map (Figure 2).

This ICMWP is limited to Dibble Park (work area) (Figure 2). The objective of the ICMWP is to describe the corrective action procedures within the work area for arsenic and lead exceedances in surface and/or subsurface soil and groundwater. The goal is to meet the commercial land use media cleanup objectives (MCOs) allowing for a commercial zoning of the work area.

Axalta has created a Corrective Measures Study (CMS) report for the Property[1]. The purpose of the CMS is "to develop and evaluate the corrective action alternative(s) and to recommend the corrective measure(s) be taken at the Property (Dragun, 2015)."

CURRENT CONDITIONS

Property History

Manufacturing operations commenced at the Property in 1917 with the Mountain Varnish and Color Works Company that manufactured paint. DuPont acquired the Property in 1934 and manufactured paint, pigments, surface coatings, and clear finishes from 1934 through 1994. DuPont primarily manufactured resins and polymers from 1994 until May 2013. Since May 2013, Axalta has used the Manufacturing Area to manufacture resins. Dibble Park (Figure 2) is an open area that was historically used for employee recreation and garden plots; it does not include manufacturing.

Current Setting

The Property has an area of approximately 36 acres that is divided into two areas: (1) the Manufacturing Area and (2) Dibble Park (Figure 1). A 6-foot-high fence topped with barbed wire surrounds the Property. Both the Manufacturing Area and Dibble Park are currently zoned M-2, industrial[2].

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[1] Dragun Corporation, "Corrective Measures Study, Axalta Coating Systems, LLC, EPA I.D. No. OHD 005-041843, 1930 Tremainsville Road, Toledo, Ohio 43613," January 29, 2015.

[2] City of Toledo, Plan Commission, "Zoning Maps," http://toledo.oh.gov/

Dibble Park Physical Conditions

The ground surface has an elevation of approximately 610 to 615 feet above sea level (fasl). The land surface within Dibble Park is predominately grass, except for one paved access road (Figure 2). Dibble Park is surrounded by a perimeter fence preventing access. A former pedestrian-access gate is welded shut. Four locked vehicle gates are at the east and southwest sides of the work area. Tifft Creek (Figure 2) traverses Dibble Park from west to east. However, Tifft Creek no longer flows through Dibble Park based on a diversion structure that was installed in 2003 to the west of Dibble Park[3]. Tifft Creek is currently a vegetated swale that contains surface water only after precipitation events.

Geological Conditions

Various investigations have been performed at the Property since 1991 (DuPont, 2008). These investigations reached a depth of approximately 46 feet below ground level (fbgl) resulting in the identification of four laterally-continuous soil units. These units have been denoted, as from shallow to deepest, as the A, B, C, and D zones. A summary of the subsurface geology is provided as follows:

Summary of Subsurface Geology			
Zone ID	**Generalized Soil Description**	**Approximate Range of Depth to Top of Zone Below Grade (ft)**	**Observed Thickness (ft)**
A	Sand and fill material	0 – 10	1.5 – 10
B	Silt and clay, no gravel	1.5 – 10	8 – 28
C	Silt and clay, trace gravel	25.5 – 33	5 – 19
D	Dense, gray till	38 – 46	>6

Hydrogeological Conditions

Three groundwater units have been identified consisting of zones A, B, and D. Prior investigation indicates the C zone is a non-water-bearing geologic unit. Fifty monitoring wells have been installed at the Property to evaluate the hydrogeological characteristics of the A, B, and D zones[4].

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[3] DuPont Corporate Remediation Group, "Current Conditions Report, DuPont Automotive Products Facility, Toledo, Ohio," August 2008.
[4] Parsons Corporation, "Environmental Indicator Determination Report, Current Human Exposure Under Control (CA725), DuPont Automotive Products Facility, Toledo, Ohio," January 2010.

Twenty-three monitoring wells are in the A zone, 11 in the B zone, and 16 in the D zone. Groundwater in the A, B, and D zones generally flows to the east-northeast based on historical groundwater elevations. The depth to groundwater is estimated as 1 to 7 fbgl at Dibble Park.

Groundwater is not used for drinking water or irrigation on, or near, the Property. City water is used for potable water. City water is also provided to the surrounding properties. Lake Erie (approximately 5.6 miles east) is the source of domestic water supply for the City of Toledo and surrounding communities. The Ohio Department of Natural Resources (ODNR) well-log records show that the closest production well for drinking water is at the Toledo Hospital, located approximately 1.9 miles south of the Property[5].

Surface Water Conditions

"The Tifft Creek channel is approximately 3 feet deep by 6 feet wide and was originally located approximately 250 feet north of the plant area. Before the City of Toledo redirected its flow, Tifft Creek flowed from west to east through Dibble Park. The creek flow in the remaining creek bed is now intermittent and occurs only during flooding events. The City of Toledo barrier diverts the flow of Tifft Creek along the railroad track west of the Site and around the Site to the north. Thus, potential stormwater flow into the creek can only occur during severe storm events when storm water flows over the barrier. Tifft Creek has been designated by the Ohio EPA in Rule 3745-1-07 of the Ohio Administrative Code (OAC; Water Use Criteria and Designations) as a limited resource water (LRW) with a designation of small drainage-way maintenance for agricultural and industrial water supply and secondary contact recreation. This designation means that Tifft Creek is a highly modified surface water drainage way that does not possess the stream morphology and habitat characteristics necessary to support any other aquatic life habitat use. The potential for habitat improvements are precluded due to the regular stream channel maintenance that is required to maintain proper drainage (Parsons, January 2010)."

Areas of Concern

Based on prior investigations, 74 Solid Waste Management Units (SWMUs) and/or Areas of Concern (AOCs) were identified for the Property (DuPont, August 2008). All of the SWMUs or AOCs are associated with the Manufacturing Area, except for AOC 1.

AOC 1 is associated with Dibble Park. Investigations at AOC 1 were completed in 2005. These investigations focused on the "identification and subsequent delineation of the fill area identified

[5] Dragun Corporation, "Groundwater Baseline Evaluation, Axalta Coatings Systems LLC, 1930 Tremainsville Road, Toledo, Ohio," January 22, 2014.

by the geophysical survey in 2003 in the southwestern portion of Dibble Park."[6] The prior Dibble Park investigations included an evaluation of surface and subsurface soil, Tifft Creek sediment and surface water, and groundwater conditions. Several investigative soil and groundwater sample locations were identified as exceeding the MCOs. Note that no other interim corrective measures are in process.

Chemicals of Concern

Dibble Park investigations have evaluated four different media: (1) surface soil (0 – 2 fbgl), (2) subsurface soil (> 2 fbgl), (3) groundwater, and (4) Tifft Creek sediment. Prior evaluation has attributed impacts to Tifft Creek sediment to sources other than the Property.

As noted in the CMS, "The upstream sample adjacent to the approximate west of the Dibble Park property boundary contained similar concentrations of SVOCs (Semi-Volatile Organic Compounds) and metals as the downstream samples." Also, "The sediment chemical impacts do not appear to correlate to an on-site condition and may be related to an off-site source" (Dragun, January 2015). Accordingly, this ICMWP does not include corrective actions for the Tifft Creek sediments.

Based on the prior information, three media remain for evaluation under this ICMWP. The COCs associated with the remaining media are summarized as follows:

Media	C)Cs	
	Arsenic	Lead
Surface soil (0 – 2 ft)	X	X
Subsurface soil (> 2 ft)	X	-
Groundwater	X	-

Surface and subsurface soil arsenic and lead concentrations for the identified locations of concern are summarized in Table 1. Table 2 indicates the groundwater COC concentrations for groundwater monitoring wells located at the work area.

[6] DuPont Corporate Remediation Group, "Site-Wide Investigation Work Plan, DuPont Automotive Products, Toledo, Ohio," November 2008.

Current Human Exposures Under Control

The current Documentation of Environmental Indicator (EI) Determination was prepared in August 2014[7]:

> *Based on a review of the information contained in the EI determination, "Current Human Exposures" are expected to be "Under Control" at the Axalta facility, EPA ID No. OHD 005041 843, located in Toledo, Ohio under current and reasonably expected conditions." This ICMWP is being prepared for an anticipated change to the land use for the work area from an industrial to a commercial land use and zoning.*

INTERIM CORRECTIVE MEASURES WORK PLAN

Interim Corrective Measures Objective

The goal of the ICMWP is to implement corrective actions sufficient to meet the U.S. EPA Regional Screening Levels (RSLs) for a commercial land use allowing for a commercial zoning of the work area. Currently, the surface and/or subsurface soil contain arsenic and lead at concentrations exceeding background and the RSLs. Also, groundwater contains arsenic at concentrations exceeding the U.S. EPA Maximum Contaminant Limit (MCL).

Description of the Interim Measures

For the surface and subsurface soil, the interim measure will be excavation with landfill disposal and an institutional control (restrictive covenant). For groundwater, the interim corrective action measure is an institutional control.

The reasons for implementing excavation with an institutional control are: (1) the greatest reduction in toxicity, mobility, and volume is obtained from the primary threat to the CMS identified receptors (surface soil impacts), (2) the ease of implementation, (3) short and long term risks reduction is quickly implemented, and (4) protection against future, receptor impact from potential groundwater exceedances of the MCOs.

Media Cleanup Objectives

As noted previously, the COCs for surface and/or subsurface soil are arsenic and lead. The MCOs for surface and subsurface soil, based on a proposed commercial land use, are as follows:

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[7] U.S. Environmental Protection Agency, Region 5, "Documentation of Environmental Indicator Determination, RCRA Corrective Action, Environmental Indicator (EI) RCRIS Code (CA725), Current Human Exposures Under Control," August 19, 2014.

COC	MCO (Surface or Subsurface Soil) (µg/kg)
Arsenic	9,930
Lead	800,000
COC: Chemical of Concern MCO: Media Cleanup Objective µg/kg: microgram per kilogram	

A total of 33 soil samples exceed the MCOs. A summary of the soil samples that exceed the MCOs are presented in Table 1. Figure 3 depicts the MCO exceedance locations.

Five groundwater monitoring well nests (CRG-5, CRG-6, CRG-7, CRG-8, and CRG-9) are located in the work area. The identified groundwater COC is arsenic (Dragun, January 2014). MCOs have not been determined for groundwater.

As noted in the CMS,

> *Historical investigation indicates groundwater impacts are limited to a small number of COCs that are detected intermittently and that are often consistent with background concentrations. The intermittent detections can't be isolated to a specific source. No groundwater plumes exist. As a result, the intermittent detection of COCs in groundwater has been handled as a Property wide issue. Groundwater monitoring has been performed through September 2013 to evaluate the plume stability for the intermittent detections. An evaluation of the historical, groundwater data trends has indicated "the concentrations of chemicals of concern have been steady or decreasing at the monitoring wells that were sampled." Further, the groundwater quality in Zone A has been evaluated as "appear to show steady or decreasing trends at the selected locations (Dragun, January 2015)."*

A comparison of the arsenic concentrations in groundwater (for the monitoring wells at the work area) to the U.S. EPA Regional Screening Level for Tap Water and the Maximum Contaminant Limits is provided in Table 2. The groundwater monitoring well locations are depicted on Figure 3. Since groundwater is not used for drinking water or irrigation at the Property, the comparison to conservative health-protective screening levels for drinking water serves only as a rough guide to constituent concentrations, rather than a measure of potential health risk.

Description of Interim Measures Procedures

Bid Process

Bids will be secured for construction services to perform the following:

- Create a health and safety plan.
- Notify the One Call system for underground utility locations.
- Install silt fencing.
- Provide safety-trained employees and heavy equipment to perform contaminated soil excavation.
- Transport contaminated soil to a licensed, disposal facility.
- Place barricades around each excavation until verification sample analytical results are received.
- Re-mobilize for further soil excavation if the verification samples are greater than the MCOs.
- Provide clean backfill and compact backfill at each excavation.
- Provide scale-ticket documentation and licensed, disposal-facility tickets for each truck load of contaminated soil.

Soil Excavation

COC locations (Table 1) will be staked, the One Call utility locate system will be notified, and silt fencing will be installed prior to excavation. Excavation will be performed on an area to be determined based on pre-excavation soil sampling (discussed later in this work plan). Verification sampling will be performed for each excavation to determine if the MCO exceedances have been removed. Verification sampling is detailed in the Sampling and Analysis section of this ICMWP. The excavations will remain open until the laboratory analytical data for the verification sampling is received. If the analytical data indicates an MCO exceedance remains, statistical evaluation of the former (DuPont historical data) and newly acquired data will be performed using the USEPA software ProUCL. If the 95% upper confidence limit (UCL) of the contaminant concentrations is below the MCO, the remediation will be considered complete. Additional excavation and verification sampling will be performed until the MCO is met or an alternative is implemented.

Once the MCOs are met, the excavations will be filled with clean soil brought to the work area.

Institutional Control

As noted previously, the MCOs have not been determined for groundwater. However, arsenic at a concentration greater than the U.S. EPA Regional Screening Level for tap water and the MCL has been detected in groundwater beneath the work area within the A, B, and D zones. An institutional control is to be implemented to minimize the potential for impact by a future receptor. The institutional control will be in the form of an environmental covenant to be recorded at the Lucas County, Ohio, Recorder. The environmental covenant will be prepared in conformance with OAC 3745-300-11 (C) (3) and Ohio Revised Code (ORC) Title 53 Real Property, Chapter 5301.

The institutional control will be effective in preventing and controlling unacceptable exposures for the following reasons:

- The environmental covenant will restrict work area use to non-residential.
- It will prohibit or place restrictions on groundwater use.

> No Day Care Center

Based on the above, an environmental covenant will be developed after the completion of the soil excavation process. Per the ORC, the environmental covenant will include the following:

- A brief narrative description of contamination on the property and its remedy, including the contaminants of concern, the pathways of exposure, limits on exposure, and the location and extent of the contamination.
- Establish restrictions or limitations on use of the property that mitigate or eliminate risk or an exposure pathway to human receptors.
- Be transferable with the property and recorded with the county recorder.
- A legally-sufficient description of the real property.
- The signatures of the grantee (Axalta) of the environmental covenant and of the U.S. EPA.

Operation and Maintenance

No operation and maintenance will be required by Axalta after the completion of the soil excavation and the recording of the environmental covenant. No treatment system, barrier, or other condition will remain that will require an operation and maintenance plan.

Waste Management

Impacted soil and groundwater may be encountered during excavation. Procedures to be implemented for the handling of contaminated media include:

- Characterization of the media
- Temporary storage
- Disposal
- Documentation

<u>Characterization</u>

Prior to excavation, waste characterization samples will be obtained from one or more of the soil sample locations exceeding the MCOs (Table 1). The soil will be analyzed for the analytical parameters requested by disposal facility. Preliminarily, the waste characterization analytical methods are anticipated to include Toxicity Characteristic Leaching Procedure (TCLP) metals, Volatile Organic Compounds (VOCs), and SVOCs.

Temporary Storage

Temporary storage of the contaminated media (i.e. soil and groundwater) may be required prior to the completion of laboratory analysis and/or proper disposal.

Storage containers for soil and environmental sampling wastes (e.g., gloves, plastic sheeting, etc.) may include, but are not limited to, drums, roll-off boxes, stockpiles, or other storage methods. Storage containers will protect the contaminated media from precipitation and run off, wind, and blowing soil. Stockpiles will be covered to prevent contact with precipitation.

Storage containers for groundwater and other media that may be saturated may include, but are not limited to, drums, storage tanks, frac tanks, or other storage methods that are designed to contain and prevent the release of liquids. These storage containers will protect the contaminated media from leakage, precipitation and run-off, wind, blowing soil, and unauthorized access.

Storage containers will contain labels indicating the waste type, hazard information, date of initial accumulation, and contact-person information.

Disposal

All wastes (soil and groundwater) will be disposed in a legal manner according to local, state, and federal requirements.

Contaminated media disposal will be performed by firms authorized for transport. All transporters will maintain pollution liability insurance in accordance with bid document requirements.

All contaminated soil containers will be documented on a per-container basis by the use of a bill of lading, manifest, or other approved form. Information to be documented on the form or in another approved manner includes the waste generator information, container type, shipment date and time, estimated quantity per container, quantity of containers being transported per shipment, transporter name, and disposal location (e.g., name, address, telephone number, contact person).

Documentation

Approval of the waste acceptance will be provided by the landfill. The disposal facility will provide documentation of receipt of the waste container(s). The documentation will consist of a receipt or completed manifest for each shipment. The documentation will include transporter name, the waste type, the quantity of waste received, the date of receipt, and the name and address of the disposal facility. Scale receipts are required if the disposal facility contains a scale.

Sample Locations and Depths

Pre-excavation soil sampling will be performed to determine the extent of impact for each of the MCO exceedance locations (Table 1 and Figure 3) with the objective of determining the required extent of excavation. Upon obtaining soil samples that meet the remediation objectives, soil will be excavated to the sample locations. The pre-excavation soil samples collected for vertical excavation extent will serve as the remediation verification samples. For the soil samples collected for the horizontal excavation extent, 50% will serve as remediation verification samples. At 50% of the horizontal sample locations, a post-excavation verification sample will be collected and tested.

If conditions (staining, discoloration, odors) indicative of impacts not identified by the preexcavation samples are observed on the excavation sidewalls or floor, additional soil sample collection and analysis will be conducted at that time.

All soil samples will be obtained in accordance with the Standard Operating Procedures (SOPs) in Appendix A.

Pre-Excavation, Soil-Sampling Strategy

A step-wise, sample-collection strategy will be used to obtain the pre-excavation soil samples as follows:

- The horizontal extent of excavation will be determined by obtaining soil samples 5 feet and 7.5 feet from the MCO exceedance location in each of the four cardinal directions. Eight total horizontal extent soil samples will be obtained for each MCO exceedance location. The samples from 7.5 feet will be held at the laboratory and only analyzed if the samples from 5 feet exceed the MCO.
- The vertical extent of excavation will be determined by obtaining soil samples from 2 feet and 4 feet below the MCO exceedance interval at two locations from within the planned excavation.
- Biased sampling will be performed where appropriate. Bias factors to be used during soil sampling will include visual and olfactory conditions and the depth where the flow of air, water, and/or nutrients will be impeded (e.g., low permeability lenses and the capillary

fringe zone). If groundwater is encountered at or above the planned sampling interval, (1) the wall samples will be obtained from a depth above the water table, and (2) an excavation floor sample will not be obtained, as potential groundwater exposures are being addressed through an institutional control. No groundwater sampling will be conducted.

Table 3 summarizes the proposed vertical-extent, soil-sample depths and the total quantity of pre-excavation soil samples to be obtained.

If sample results do not meet the remediation objectives, additional horizontal and/or vertical step-out samples will be collected. Under this scenario, it may be necessary to add floor or sidewall sampling locations based on the planned excavation size. The number of remediation verification samples collected will be based on the following rationale:

Number of Vertical-Extent, Pre-Excavation, Floor Samples	
Area of Floor (SFT)	**Number of Samples**
< 500	1
500 – 1,000	2
1,000 – 1,500	3
1,500 – 2,500	4

Number of Horizontal, Pre-Excavation, Wall Samples	
Total Wall Area (SFT)	**Number of Samples**
< 500	4
500 – 1,000	5
1,000 – 1,500	6
1,500 – 2,000	7

<u>Post-Excavation Soil Verification Sampling</u>

As discussed above, the pre-excavation soil samples collected for vertical excavation extent will serve as the remediation verification samples. For the soil samples collected for the horizontal excavation extent, 50% will serve as remediation verification samples. At 50% of the horizontal sample locations, a post-excavation verification sample will be collected and tested.

Analysis

As noted on Table 1, surface and subsurface soil impacts for each excavation consist of either arsenic or lead. Verification samples will be analyzed for the metal of concern identified for each excavation as summarized on Table 4.

The laboratory analytical methods are as follows:

Analyte	Analytical Method
Arsenic	U.S. EPA method 200, 6010, 6020, or equivalent
Lead	

Analysis will be completed within 48 hours of the date of receipt at the laboratory.

Data Evaluation

If concentrations in the pre-excavation and post-excavation soil samples are below MCOs, the remediation will be considered complete. If the pre-excavation, step-out sample concentrations or post-excavation, verification-sample concentrations exceed the MCOs, a statistical evaluation of the former (DuPont historical data) and newly acquired data will be performed using the USEPA software ProUCL. If the 95% upper confidence limit (UCL) of the contaminant concentrations is below the MCO, the remediation will be considered complete.

Data Quality Objectives

The Data Quality Objectives (DQOs) include a description of the basic Quality Assurance/Quality Control (QA/QC) concepts and describes the quantitative goals used by field samplers, the laboratories, and the data evaluators.

Precision

Field precision is measured by collecting field-duplicate samples at a frequency specified for each matrix that is collected (soil). Field duplicates will be obtained from each excavation. The frequency of field duplicate sampling will be one per 10 verification soil samples, or a minimum of one per excavation area. Based on Table 3, there are eight excavation areas. Accordingly, a minimum of eight duplicate samples will be obtained.

Accuracy

Accuracy will be evaluated by the use percent recovery (%R) of the target analyte in spiked samples and surrogates in all samples and QC samples using the following formula:

$$\%R = \frac{SQ - NQ}{S} \times 100$$

Where:

SQ = quantity of spike or surrogate found in sample
NQ = quantity found in native (unspiked) sample
S = quantity of spike or surrogate added to native sample

Representativeness

Representativeness is the degree to which data from the project accurately represent a particular characteristic of the environmental matrix (soil) that is being tested. Representativeness of samples is ensured by adherence to SOPs and standard laboratory protocols. The SOPs to be used for the sampling are enclosed in Appendix A. Laboratory protocols are represented by laboratory certifications provided by governing organizations (OEPA) and through the use of internal SOPs.

Training Requirements/Certifications

Specific training requirements for performing field work are as follows:

- All field personnel must have successfully completed 40 hours of training for hazardous site work in accordance with Occupational Safety and Health Administration (OSHA) 29 Code of Federal Regulations (CFR) 1910.120(e)(3) and be current with their 8-hour refresher training in accordance with OSHA 29 CFR 1910.120(e)(8). Documentation of OSHA training is required prior to personnel being permitted to work at the work area.

- Personnel must be enrolled in a medical surveillance program meeting the requirements of OSHA 29 CFR 1910.120(f). Personnel must have successfully passed an occupational physical during the past 12 months and be medically cleared to work on a hazardous waste site and capable of wearing appropriate personal protective equipment (PPE) and respiratory protection as may be required.

- Scientists/chemists performing the analytical work for this project must have extensive knowledge, skill, and have demonstrated experience in the execution of the analytical methods being requested.

All employees must be trained for the task for which they are assigned. Training may include education, licensing/certification, training courses, the information presented in the SOPs, or experience.

Documentation and Records

Field investigators will maintain field notes in a bound notebook and/or in an electronic format. All documents, records, and data collected (once they are no longer needed) will be kept in a secure, records filing area. Documentation will be maintained for six years. Various items of documentation are defined in the SOPs (Appendix A).

Project Management

Project Organization

Currently assigned responsibilities of the parties involved in the ICMWP are summarized as follows:

Name	Position	Affiliation	Telephone	Email
Rodney J. Maier	Project Administrator	Axalta	586-468-9323	rodney.maier@axaltacs.com
Matthew C. Schroeder, P.E.	Project Manager	Dragun	248-932-0228	mschroeder@dragun.com
Mark E. Resch, L.P.G.	Field Manager	Dragun	248-932-0228	mresch@dragun.com
Christopher Black	RCRA Project Manager	U.S. EPA	312-886-1451	black.christopher@epa.gov

Project Schedule

Prior to commencement of any fieldwork, notification will be made to the U.S. EPA coordinator. Notification will be made at least seven (7) days in advance of the scheduled fieldwork activities. Work will be scheduled upon the completion of bid review and contracting. The work is to be performed after receipt of this ICMWP by the U.S. EPA.

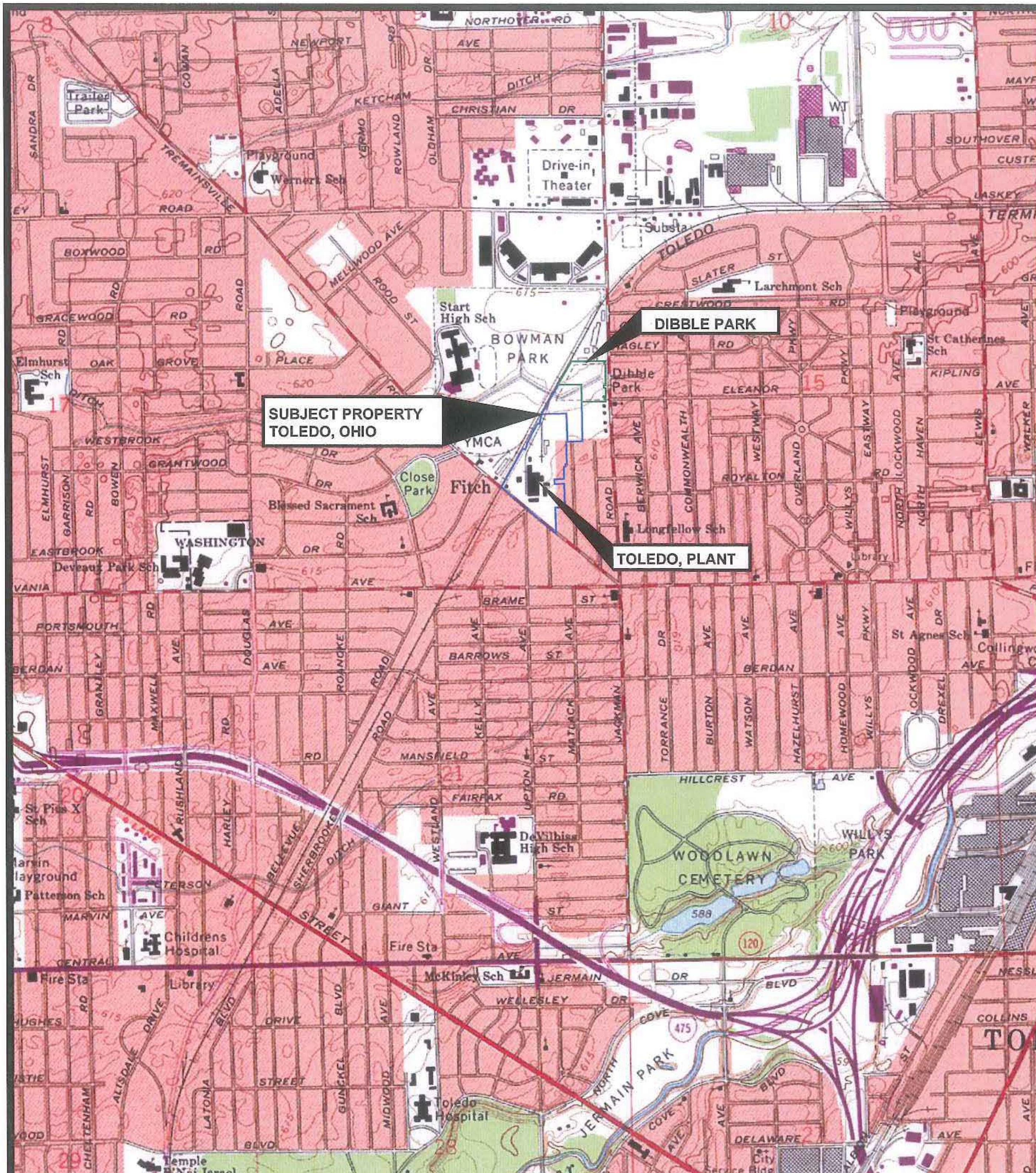
Reporting

Status reporting will be performed by the Project Manager to Axalta via telephone and/or email. Status reports will be provided as data is acquired and evaluated.

Following the completion of the excavation of the soil samples containing exceedances of the MCOs, a report of findings documenting the results of the ICMWP will be developed. The report will include figures of the excavation and verification sample locations, the laboratory analytical reports, and the landfill documentation.

FIGURES

Interim Corrective Measures Work Plan – Revision #1
EPA I.D. No. OHD 005-041-843
Dibble Park
1930 Tremainsville Road
Toledo, Ohio 43613
Project #30380-13



INTERIM CORRECTIVE MEASURES
WORK PLAN, DIBBLE PARK,
AXALTA COATING SYSTEMS, LLC
1930 TREMAINSVILLE ROAD, TOLEDO, OHIO

FIGURE 1
SITE LOCATION MAP

SCALE

0 FEET 2000

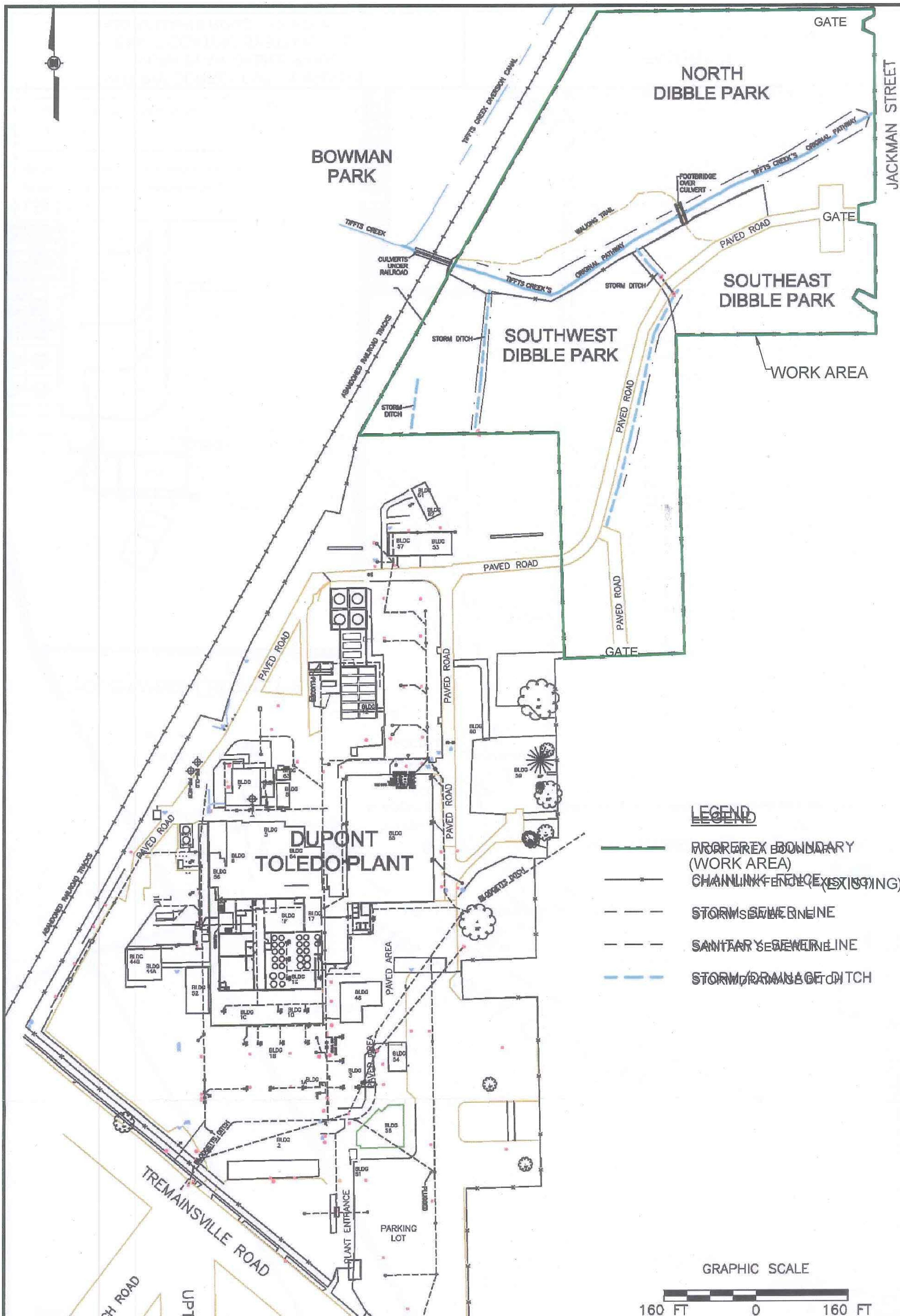
DragunCorporation
Environmental Advisors

OHIO

QUADRANGLE LOCATION

Source: Toledo Ohio-Michigan Quadrangle
(U.S. Geological Survey, 1980
Contour Interval = 5 Feet

File:K:\2013\30380-13 Axalta Toledo Interim CMS\CAD\ICMWP 30380-13 Figure 1
Date: 1/19/2016



INTERIM CORRECTIVE MEASURES
WORK PLAN, DIBBLE PARK,
AXALTA COATING SYSTEMS, LLC
1930 TREMAINSVILLE ROAD, TOLEDO, OHIO

FIGURE 2
PROPERTY FEATURES MAP

Source: Dupont Corporate Remediation Group, Figure 2 Property Features Map, Dupont Toledo Site, 1930 Tremainsville Road, Toledo, Ohio, date 08/15/2007.

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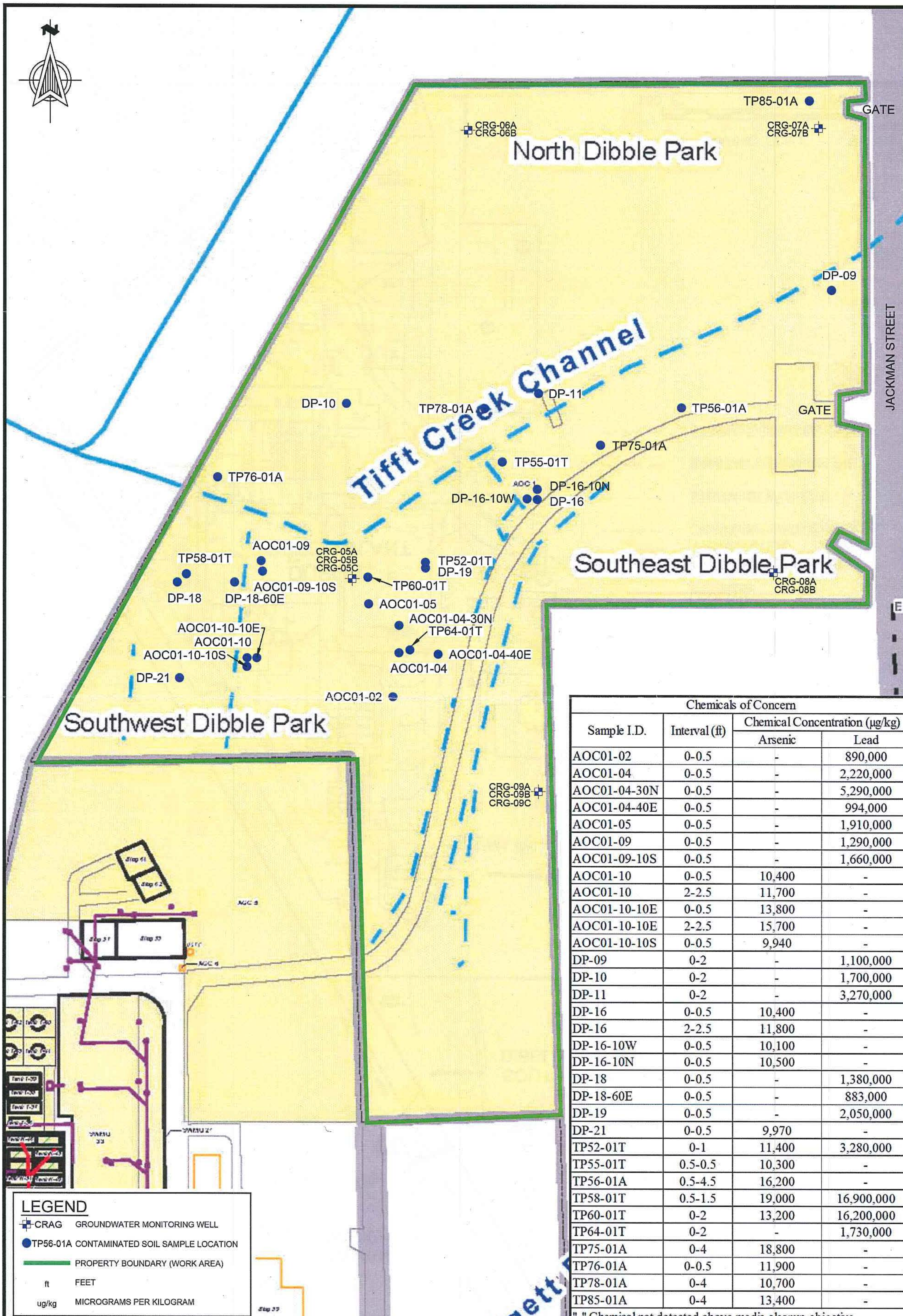

Sample I.D.	Interval (ft)	Chemicals of Concern: Chemical Concentration (µg/kg) Arsenic	Lead
AOC01-02	0-0.5	-	890,000
AOC01-04	0-0.5	-	2,220,000
AOC01-04-30N	0-0.5	-	5,290,000
AOC01-04-40E	0-0.5	-	994,000
AOC01-05	0-0.5	-	1,910,000
AOC01-09	0-0.5	-	1,290,000
AOC01-09-10S	0-0.5	-	1,660,000
AOC01-10	0-0.5	10,400	-
AOC01-10	2-2.5	11,700	-
AOC01-10-10E	0-0.5	13,800	-
AOC01-10-10E	2-2.5	15,700	-
AOC01-10-10S	0-0.5	9,940	-
DP-09	0-2	-	1,100,000
DP-10	0-2	-	1,700,000
DP-11	0-2	-	3,270,000
DP-16	0-0.5	10,400	-
DP-16	2-2.5	11,800	-
DP-16-10W	0-0.5	10,100	-
DP-16-10N	0-0.5	10,500	-
DP-18	0-0.5	-	1,380,000
DP-18-60E	0-0.5	-	883,000
DP-19	0-0.5	-	2,050,000
DP-21	0-0.5	9,970	-
TP52-01T	0-1	11,400	3,280,000
TP55-01T	0.5-0.5	10,300	-
TP56-01A	0.5-4.5	16,200	-
TP58-01T	0.5-1.5	19,000	16,900,000
TP60-01T	0-2	13,200	16,200,000
TP64-01T	0-2	-	1,730,000
TP75-01A	0-4	18,800	-
TP76-01A	0-0.5	11,900	-
TP78-01A	0-4	10,700	-
TP85-01A	0-4	13,400	-

"-" Chemical not detected above media cleanup objective.

INTERIM CORRECTIVE MEASURES
WORK PLAN, DIBBLE PARK,
EXALT COATING SYSTEMS, TLC
1930 REMAINS ROAD, TOLEDO, OHIO

FIGURE 3
CHEMICAL CONCENTRATIONS

SCALE
0 FEET 100

Source: Parsons, Figure 2 Site Layout Map, Dumont Automotive Products Facility,1930 Remissible Road, Toledo, Ohio, date 12/14/2009.

File: K:\2013\30380-13 Axalta Toledo Interim CMS\CAD\ICMWP\30380-13 Figure 3.dwg Date: 1/19/2016

Dragun Corporation
Environmental Advisors

TABLES

Interim Corrective Measures Work Plan – Revision #1
EPA I.D. No. OHD 005-041-843
Dibble Park
1930 Tremainsville Road
Toledo, Ohio 43613
Project #30380-13

Table 1: Summary of Surface and Subsurface Soil Exceedances of the Media Cleanup Objectives
Interim Corrective Measures Work Plan
Dibble Park
1930 Tremainsville Road, Toledo, Ohio
Dragun No. 30380-13

ID	Sample Interval (ft)	Detected Chemical and Concentration (µg/kg)	
		Arsenic	Lead
AOC01-02	0-0.5	7,430	**890,000**
AOC-01-04	0-0.5	8,790	**2,220,000**
AOC01-04-30N	0-0.5	NT	**5,290,000**
AOC01-04-40E	0-0.5	NT	**994,000**
AOC01-05	0-0.5	8,390	**1,910,000**
AOC01-09	0-0.5	7,340	**1,290,000**
AOC01-09-10S	0-0.5	NT	**1,660,000**
AOC01-10	0-0.5	**10,400**	159,000
AOC01-10	2-2.5	**11,700**	NT
AOC01-10-10E	0-0.5	**13,800**	NT
AOC01-10-10E	2-2.5	**15,700**	NT
AOC01-10-10S	0-0.5	**9,940**	NT
DP-09	0-2	-	**1,100,000**
DP-10	0-2	-	**1,700,000**
DP-11	0-2	-	**3,270,000**
DP-16	0-0.5	**10,400**	148,000
DP-16	2-2.5	**11,800**	NT
DP-16-10W	0-0.5	**10,100**	NT
DP-16-10N	0-0.5	**10,500**	NT
DP-18	0-0.5	6,510	**1,380,000**
DP-18-60E	0-0.5	NT	**883,000**
DP-19	0-0.5	9,240	**2,050,000**
DP-21	0-0.5	**9,970**	188,000
TP52-01T	0-1	**11,400**	**3,280,000**
TP55-01T	0.5-0.5	**10,300**	130,000
TP56-01A	0.5-4.5	**16,200**	16,500
TP58-01T	0.5-1.5	**19,000**	**16,900,000**
TP60-01T	0-2	**13,200**	**16,200,000**
TP64-01T	0-2	5,070	**1,730,000**
TP75-01A	0-4	**18,800**	15,100
TP76-01A	0-0.5	**11,900**	25,600
TP78-01A	0-4	**10,700**	20,900

TP85-01A	0-4	**13,400**	16,400
Media Cleanup Objective (U.S. EPA Regional Screening Levels for a commercial/industrial land use and background (arsenic)):			
Carcinogenic screening level:		NA	800,000
Calculated Site Specific Background:		9,930	NA

NOTES:
µg/kg: micrograms per kilogram.
BOLD indicates an exceedance of media cleanup objective.
NT: Not Tested.
-: Data not available.
NA: Not Applicable.
Data source: Parsons, "Corrective Measures Study (CMS), Technical Memorandum 1, DuPont Automotive Products Facility, Toledo, Ohio," June 2012.

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Table 2: Summary of Groundwater Chemical of Concern Concentrations
Interim Corrective Measures Work Plan
Dibble Park
1930 Tremainsville Road, Toledo, Ohio
Dragun No. 30380-13

ID	Dissolved Arsenic Concentration (µg/L)
CRG-05A	14
CRG-05B	19
CRG-05D	< 2
CRG-06A	< 0.95
CRG-06B	13
CRG-07A	3
CRG-07B	2
CGR-08A	< 0.95
CRG-08B	5
CRG-09A	< 0.95
CRG-09B	108
CRG-09D	18
U.S. EPA Maximum Contaminant Limit:	10
U.S. EPA Regional Screening Level for Tap Water:	0.052
NOTES:	
µg/L: micrograms per liter.	

Data source: Dragun Corporation, "Groundwater Baseline Evaluation - 2013, Axalta Coating Systems, LLC, 1930 Tremainsville Road, Toledo, Ohio," January 22, 2014.

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Table 3: Summary of Pre-Excavation Soil Sample Quantities
Interim Corrective Measures Work Plan
Dibble Park
1930 Tremainsville Road, Toledo, Ohio
Dragun No. 30380-13

ID	MCO Exceedance Interval (ft)	Vertical Extent Soil Sample Depth		Horizontal Extent of Excavation Sample Quantity		otal Pre-Excavation Soil Samples		
		First Interval (ft)	Second Interval (ft)	5 ft. Radius	7.5 ft. Radius	Vertical Extent	Horizontal Extent	Total Vertical + Horizontal
AOC01-02	0-0.5	2.5	4.5	4	4	2	8	10
AOC-01-04	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-04-30N	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-04-40E	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-05	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-09	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-09-10S	0-0.5	2.5	4.5	4	4	2	8	10
AOC01-10	0-0.5	4.5	6.5	4	4	2	8	10
AOC01-10	2-2.5							
AOC01-10-10E	0-0.5	4.5	6.5	4	4	2	8	10
AOC01-10-10E	2-2.5							
AOC01-10-10S	0-0.5	2.5	4.5	4	4	2	8	10
DP-09	0-2	4	6	4	4	2	8	10
DP-10	0-2	4	6	4	4	2	8	10
DP-11	0-2	4	6	4	4	2	8	10
DP-16	0-0.5	4.5	6.5	4	4	2	8	10
DP-16	2-2.5							
DP-16-10W	0-0.5	2.5	4.5	4	4	2	8	10
DP-16-10N	0-0.5	2.5	4.5	4	4	2	8	10
DP-18	0-0.5	2.5	4.5	4	4	2	8	10
DP-18-60E	0-0.5	2.5	4.5	4	4	2	8	10

DP-19	0-0.5	2.5	4.5	4	4	2	8	10
DP-21	0-0.5	2.5	4.5	4	4	2	8	10
TP52-01T	0-1	3	5	4	4	2	8	10
TP55-01T	0.5-0.5	2.5	4.5	4	4	2	8	10
TP56-01A	0.5-4.5	6.5	8.5	4	4	2	8	10
TP58-01T	0.5-1.5	3.5	5.5	4	4	2	8	10
TP60-01T	0-2	4	6	4	4	2	8	10
TP64-01T	0-2	4	6	4	4	2	8	10
TP75-01A	0-4	6	8	4	4	2	8	10
TP76-01A	0-0.5	2.5	4.5	4	4	2	8	10
TP78-01A	0-4	6	8	4	4	2	8	10
TP85-01A	0-4	6	8	4	4	2	8	10
						60	240	300

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Table 4: Verification Analysis Chemicals of Concern
Interim Corrective Measures Work Plan
Dibble Park
1930 Tremainsville Road, Toledo, Ohio
Dragun No. 30380-13

ID	Sample Interval (ft)	Verification Analysis
AOC01-02	0-0.5	Lead
AOC-01-04	0-0.5	Lead
AOC01-04-30N	0-0.5	Lead
AOC01-04-40E	0-0.5	Lead
AOC01-05	0-0.5	Lead
AOC01-09	0-0.5	Lead
AOC01-09-10S	0-0.5	Lead
AOC01-10	0-0.5	Arsenic
AOC01-10	2-2.5	Arsenic
AOC01-10-10E	0-0.5	Arsenic
AOC01-10-10E	2-2.5	Arsenic
AOC01-10-10S	0-0.5	Arsenic
DP-09	0-2	Lead
DP-10	0-2	Lead
DP-11	0-2	Lead
DP-16	0-0.5	Arsenic
DP-16	2-2.5	Arsenic
DP-16-10W	0-0.5	Arsenic
DP-16-10N	0-0.5	Arsenic
DP-18	0-0.5	Lead
DP-18-60E	0-0.5	Lead
DP-19	0-0.5	Lead
DP-21	0-0.5	Arsenic
TP52-01T	0-1	Arsenic and Lead
TP55-01T	0.5-0.5	Arsenic
TP56-01A	0.5-4.5	Arsenic
TP58-01T	0.5-1.5	Arsenic and Lead
TP60-01T	0-2	Arsenic and Lead

TP64-01T	0-2	Lead
TP75-01A	0-4	Arsenic
TP76-01A	0-0.5	Arsenic
TP78-01A	0-4	Arsenic
TP85-01A	0-4	Arsenic

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APPENDIX A
Standard Operating Procedures

Interim Corrective Measures Work Plan – Revision #1
EPA I.D. No. OHD 005-041-843
Dibble Park
1930 Tremainsville Road
Toledo, Ohio 43613
Project #30380-13

SOIL SAMPLING – STAINLESS-STEEL SCOOP

1.0 Purpose:

The purpose of this document is to establish standard operating procedures (SOPs) for collecting shallow soil, sediment, and sludge samples with a stainless steel scoop.

A stainless steel-steel scoop or trowel is commonly used to obtain near surface soil, sediment, and sludge samples from the ground surfaces, stockpiles, drums, tanks, etc.

2.0 Procedures:

1) Read the project work plan to evaluate scope of work and sampling requirements. Maintain a copy of the work plan on site.

2) Decontaminate the scoop prior to sampling.

3) Remove the top layer of soil, sediment, or sludge to the desired sample depth with a decontaminated spade or directly with the scoop as applicable.

4) Collect the desired quantity of soil, sediment, or sludge using the scoop while wearing a clean pair of nitrile gloves. Transfer the sample directly to the laboratory supplied containers.

5) Plug the Encore® sampler or Method 5035 syringe directly into the media being sampled when collecting a volatile organic compound sample.

6) Label the sample container. Complete all Chain-of-Custody documents and record the details in the project field book.

3.0 Records and Documentation:

A record of with a stainless steel-steel scoop and equipment decontamination is documented in the project field book and chain-of-custody forms.

4.0 Applicable Standards and References:

Environment Canada, "TAB #4: Sampling & Analysis of Hydrocarbon Contaminated Soil", November, 2002.

New Jersey Department of Environmental Protection and Energy, "Field Sampling Procedures Manual", August 2005.

U.S. EPA, Science and Ecosystem Support Division, "Soil Sampling", SESDPROC-300R1, November 1, 2007.

SOIL SAMPLING - HAND AUGER

1.0 Purpose:

The purpose of this document is to establish standard operating procedures (SOPs) for obtaining shallow disturbed soil, sediment, or sludge samples using a hand auger. Hand auger sampling is not a preferred method when collecting soil samples for volatile organic compound (VOC) analysis.

2.0 Procedures:

1) Read the project work plan to evaluate scope of work and sampling requirements. Maintain a copy of the work plan on site.

2) Inspect the auger fittings for wear. Bring the appropriate tools for assembling auger handle sections.

3) Turn auger clockwise while exerting downward pressure to dig the borehole. Advance auger approximately 6 inch (15.2 centimetres (cm)) and then remove the auger for sample observation.

4) Calculate depth of penetration into borehole using auger lengths. Augers are typically 12 inches (30 cm) long with four foot (1.22 metre) long extensions.

5) Discard the approximate upper one inch (2.5 cm) of soil (typically cave in from the borehole wall and not representative of the augured interval) after removal of auger from the borehole.

6) Place soil directly into labeled gallon size ziplock freezer bags or onto clean plastic sheeting placed adjacent to the borehole. If placing soil on the plastic sheeting, empty the soil from each auger increment into separate piles located next to the other. Evaluate each augured increment.

7) Label the sample containers.

8) Transfer the sample directly to the laboratory containers wearing a clean pair of nitrile gloves.

9) Place all samples in an ice-filled cooler immediately after sampling.

10) Complete all chain-of-custody documents and record the details in the project specific field book.

11) Backfill the borehole as indicated in the work plan. Decontaminate the auger between boreholes.

3.0 Records and Documentation:

Record details of hand auger soil sampling in the project specific field book. Document the following: sampling and decontamination of equipment, driller and helper's names, method of decontamination, material used to backfill, and method used for patching the borehole at grade.

Complete soil boring logs for every hand auger boring location. Complete chain-ofcustody forms to accompany each sample shipment.

4.0 Special Notes:

Disadvantages of the hand auger are that it provides a disturbed soil sample and it is not considered a tool suitable for VOC sampling in many regions. Evaluate local regulatory programs to determine the applicability of the hand auger for VOC sampling.

5.0 Applicable Standards and References:

ASTM D1452-90, "Standard Practice for Soil investigation and Sampling by Auger Borings."

New Jersey Department of Environmental Protection and Energy, "Field Sampling Procedures Manual", August 2005.

U.S. EPA, Science and Ecosystem Support Division, "Soil Sampling", SESDPROC-300R1, November 1, 2007.

SOIL SAMPLING - VOCs

1.0 Purpose:

The purpose of this document is to establish standard operating procedures (SOPs) for collecting soil samples for laboratory analysis of volatile organic compounds (VOCs).

Note: USEPA Method 5035 is designed to reduce volatilization of the VOCs prior to sample analysis. When using the USEPA Method 5035 field preservation method, typically the sample bottles are prepared by the laboratory conducting the analysis (weighed prior to and after adding a known quantity of methanol or sodium bisulphate preservative). It is essential to allow ample time for the laboratory to prepare and deliver the required sample bottles.

Additionally, it is critical to monitor the loss of methanol or sodium bisulphate during transportation from the laboratory. Ensuring each vial has a tight cap upon receipt, checking that the preservative level has not dropped, and/or re-weighing of the sample container are methods that can be employed to check for preservative loss.

Sodium bisulfate is used as the preservative for low concentration (low level) soil samples. This preservation is required to attain required detection limits in some jurisdictions (i.e. Michigan).

Laboratories often supply cut-off syringes with their Method 5035 soil sample kits and suggest that the syringe plunger be in the full position prior to inserting the sample device into the soil core. Laboratory supplied cut-off syringes may not allow air to escape around the plunger. In clayey soils this air becomes pressurized and often forces the sampler out of the soil. The repeated insertion of the sampler into the clayey soil may result in loss of VOCs. In sandy soils the air within the cut-off syringe is forced through the sandy soil and also may result in the loss of VOCs. These issues can be avoided by positioning the plunger adjacent to the soil and allowing the plunger to slide back to the full position as the sampler is pushed into the soil.

It is important to be aware of the length of the soil sample obtained when using laboratory supplied cut-off syringes in clayey soils. Narrow diameter cut-off syringes may produce a soil sample that will not completely submerged in the preservative and may result in a loss of VOCs.

It is also essential to have extra bottles available when using USEPA Method 5035. Contaminant conditions often necessitate the collection of multiple soil VOC samples from a single soil boring. It is good practice to have two (or more if needed) USEPA Method 5035 sample kits for a soil boring where the work plan indicates only one soil sample will be sent to the laboratory for analysis. Additionally, if utilizing USEPA Method 5035 sample preservation techniques, ensure that a separate un-preserved bottle for moisture analysis is collected at each sample location.

2.0 Procedures:

2.1 Planning:

1) Read the project work plan to evaluate scope of work, identify target sample depths, and sampling requirements. Maintain a copy of the work plan on site.

2) Determine methods of sample collection and analysis.

3) Order appropriate sample containers from laboratory. If necessary, inform them of the applicability of USEPA Method 5035. Determine if the laboratory will supply specific tools (i.e. sampling syringe and bottles containing preservatives). Review with the laboratory, their preferred quantity of soil to be placed in the syringe and the quantity of containers to be used for each sample point.

2.2 Sampling:

1) Label the laboratory supplied containers prior to obtaining the soil sample. Check that preservative is up to indicator line on container (preservative has not been lost during transport or storage).

2) Decontaminate non-disposable sampling tools prior to use. Don clean disposable nitrile gloves prior to the driller opening the soil sampling device (e.g. Geoprobe® sleeve, split spoon, etc.).

3) Obtain photoionization detector (PID) measurements, visual indications of chemical impact, and olfactory observations from the recovered soil sample within one minutes of opening the soil sampling device (i.e. identify the soil increment to be sampled).

4) Prior to performing any other soil boring logging task, collect the soil sample immediately if possible (within two minutes of opening the soil sampling device) to reduce volatilization of chemicals of interest from the recovered soil sample. If using Method 5035, insert the laboratory supplied discreet sampling tool (e.g. cut-off syringe, Encore, or similar) into the soil to collect the laboratory indicated quantity (generally between 5 and 25 ml of soil).

5) Extrude any excess soil from the Method 5035 sampling tool. Wipe excess soil from the bottom of the sampling tool so that the soil is flush with the tool bottom. Wipe soil off the exterior of the sampling tool.

6) If using the field preservation method, hold the laboratory supplied sample container at a 45 degree angle while placing the sampling tool opening over the container. Slowly and carefully extrude the soil sample into the container. It is critical to ensure that the preservation fluid (methanol or sodium bisulphate) is not lost (i.e. spilled or splashed out of the container). Place the lid on the container and gently swirl the preservation fluid over the soil. Dispose of the sampling tool after each sample point.

7) If using Encore sampling tools, follow Encore sample directions and ensure the cap is properly fitted to the sample tool.

8) Fill laboratory supplied moisture content container (must accompany Method 5035 VOC container).

9) Soil samples containing carbonate materials may effervesce ("bubbles") when preserving with sodium bisulfate. The effervescing may reduce the VOC concentration or if substantial, even cause the vials to break. If effervescence is observed, collect an additional second, non-preserved filled vial. Note the effervescing and non-preserved vial on the chain of custody.

10) If not using Method 5035, fill laboratory supplied containers to the top and wipe excess soils off the top so that the soil is flush (zero head space) with the top of the container (minimize air pockets in soil sample). Wipe off any excess soil on the threads of the jar. Place lid on jar and seal.

11) Obtain non-VOC soil samples and place into laboratory supplied containers.

12) Place all samples in an ice-filled cooler immediately after sampling.

13) Continue with other soil boring logging tasks (e.g. soil classification, recovery measurement, penetrometer measurements, etc.).

14) Complete chain-of-custody forms and submit samples to the designated laboratory within mandatory holding periods.

3.0 Records and Documentation:

A record of the VOC soil sampling for laboratory analysis procedures is to be documented in the project specific field book, soil boring log, and chain-of-custody form.

4.0 Applicable Standards and References:

U.S. EPA, "Method 5035A, Closed-System Purge and Trap and Extraction for Volatile Organics in Soil and Waste Samples", Draft Revision 1, July 2002.

New Jersey Department of Environmental Protection and Energy, "Field Sampling Procedures Manual", August 2005.

Ministry of the Environment, "Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act", July 1, 2011.

SOIL SAMPLING - NON-VOCs

1.0 Purpose:

The purpose of this document is to establish standard operating procedures (SOPs) for collecting soil samples for laboratory analysis of non-volatile organic compounds.

2.0 Procedures:

2.1 Planning:

1) Read the project work plan to evaluate scope of work and sampling requirements. Maintain a copy of the work plan on site.

2) Order the appropriate sample containers from the laboratory. Review with the laboratory, their methodology regarding container types, preservatives, and quantity to be collected at each sample point.

2.2 Sampling:

1) Use clean disposable nitrile gloves for each sample point. Label laboratory supplied containers prior to obtaining the sample.

2) Decontaminate sampling tools prior to use.

3) Collect the soil sample using the project specific tool (e.g. scoop, split spoon, Geoprobe® sleeve, etc.).

4) Place soil in laboratory supplied containers. Collect samples in the following order:
   1. Semi-volatile organic compounds
   2. Petroleum hydrocarbons
   3. Polychlorinated byphenyls
   4. Metals
   5. Phenol
   6. Cyanide
   7. Sulfate and Chloride
   8. Nitrate and Ammonia

5) Change gloves and decontaminate sampling equipment between sample points.

6) Fill each laboratory supplied container to flush (zero head space) with the top of the container (minimize air pockets in soil sample). Wipe off any excess soil on the threads of the jar. Place lid on jar and seal.

7) Place all samples in an ice-filled cooler immediately after sampling.

8) Complete chain-of-custody forms and submit samples to the designated laboratory within mandatory holding periods.

3.0 Records and Documentation:

A record of non-VOCs soil sampling for laboratory analysis procedures is to be recorded in the project field book, soil boring log, and chain-of-custody form.

4.0 Applicable Standards and References:

New Jersey Department of Environmental Protection and Energy, "Field Sampling Procedures Manual", August 2005.

U.S. EPA, Science and Ecosystem Support Division, "Soil Sampling", SESDPROC-300R1, November 1, 2007.

SOIL SAMPLING - EXCAVATION

1.0 Purpose:

The purpose of this document is to establish standard operating procedures (SOPs) for collecting verification (confirmation) soil samples from an excavation.

2.0 Procedures:

2.1 Planning:

1) Read the project work plan to evaluate scope of work and sampling requirements. Maintain a copy of the work plan on site.

2) Determine if a regulatory program specific sampling strategy is required.

3) Determine sampling locations.

4) Select sampling locations based on review of site conditions and knowledge of source(s) that resulted in contamination (i.e. beneath an underground storage tank (UST) that leaked at the fill port).

5) Determine methods of sample collection and anaylsis (i.e. use of USEPA Method 5035). Method 5035 is designed to reduce volatilization of the volatile organic compounds (VOCs) prior to sample analysis

2.2 Sampling:

1) Observe for release or potential release during excavation activities. Create a sketch to document tank orientation, location and dimension, and discoloration of soil indicating a release.

2) Direct the backhoe operator to fill bucket with soil from the designated wall or floor and to rest bucket on the surface in a safe and accessible location.

3) Collect the sample from the backhoe bucket using Method 5035 appropriate sampler or decontaminated stainless steel scoop or trowel

while wearing a clean pair of disposable nitrile gloves. Place the soil sample into laboratory supplied containers for analysis. If required, place soil into a ziplock bag for headspace analysis.

4) Document location and depth of sample on sketch of excavation in field book.

5) Direct the backhoe operator to properly dispose of the remaining soil contained within the backhoe bucket.

6) Place all samples in an ice-filled cooler immediately after sampling.

7) Repeat steps 3 through 6 until sampling is complete.

8) Complete chain-of-custody forms and submit samples to the designated laboratory within mandatory holding periods.

3.0 Records and Documentation:

A record of excavation soil sampling is to be documented in the project specific field book and chain-of-custody form. Sample locations are marked on a map. Document all relevant conversations with contractor, client, and project management pertaining to changes in the scope of work and schedule.

4.0 Applicable Standards and References:

Environment Canada, Contaminated Site Remediation Section, Technical Assistance Bulletins, "Tab #4: Sampling & Analysis of Hydrocarbon Contaminated Soil", November 19, 2002.

Michigan Department of Environmental Quality, Remediation and Redevelopment Division, "Sampling Strategies and Statistics Training Materials for Part 201 Cleanup Criteria", August 2002.